

Effect of Wages on Informal Care And Labor Supply:
Do Long-Term Care Policies Matter?

Olena Nizalova

Kyiv Economics Institute,
EERC-Kyiv School of Economics

51 Dekhtyariivska Str, Suite 12
03113 Kyiv, Ukraine
Tel.: 38.044.492.8012

E-mail: nizalova@eerc.kiev.ua

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Abstract

This paper analyzes the two sets of policies aimed at sustaining old-age support systems in European countries. One set of policies aims at increasing labor supply of individuals around the retirement age, the other strives at promoting provision of informal care for the elderly by family members. Accounting for the countries' policies on long-term care provision, it has been found that the presence of universal long-term care coverage leads to larger negative wage effect on informal care provision by both males and females. General taxation as a means of financing formal long-term care system has virtually no effect on the wage response in informal caregiving, but has significant positive effect on the wage elasticity of male labor supply. With respect to policies that target informal long-term care, direct payments for caregiving have significant positive effect on the wage elasticity of both informal care supply and labor supply of males, while having no effect on those of females. Availability of family paid leaves significantly increases only the wage elasticity of female labor supply.

1 Introduction

Governments of every developed nation are struggling to find the way of fulfilling their promises of support in old age. Declining birth rates, earlier retirement age and increases in the life expectancy are leaving countries with more pensioners and less workers to support them. The problem seems to be the most severe in Europe and Japan with the median age in Europe jumping from the current 39 to 48 years by the year 2050 compared to the projected median age of 39 for the US (US Census Projections). It is also projected that by the same year Europe will have 75 people of pension age for every 100 workers. Concerns about population aging are not limited to the pension costs. They include a vast array of issues with the long-term care. The dramatic surge in long-term care costs throughout the developed world over the last two decades has made this issue as important as the sustainability of the pension systems. Two solutions have been suggested in the policy debates. One is to increase working population by encouraging more female labor force participation and inducing people to retire later (CBO 2004; U.S. DHHS 1997; Apfel 2004). The second solution refers to the informal care provided by relatives and friends that would permit to "keep many individuals at home who would otherwise require expensive institutional care" (U.S. DHHS 1997, p.6). Unfortunately, these two suggestions are in conflict with each other. For example, the governments may induce higher labor supply by lowering taxes and thus increasing wages. But this will increase the opportunity costs of informal care and thus reduce the care supply. On the other hand, any policy stimulating informal care may lead to a decreased labor supply.

Related research is quite scarce focusing mostly on the labor supply and claiming behavior of the groups affected by the Social Security reforms in the United States (Haider and Loughran 2005; Baker and Benjamin 1999; Burtless and Moffitt 1984; Friedberg 2000; Gruber and Orszag 1999) with little attention paid to the potential interaction between incentives for paid employment and caregiving choices. This interaction may have adverse implications to the well-being of the oldest old, given that the prevalence of caregiving is the highest among

individuals in their late mid-life.¹

Contrary to few earlier studies that focus on the wage effects on informal care (Sloan et al. 2002; Zissimopoulos 2001; Ioannides and Kan 1999; Sloan et al. 1997; Couch et al. 1999), Nizalova (2006) finds that the wage elasticity of the informal care supply is negative and quite large in magnitude. In addition, Nizalova (2006) and Zissimopoulos (2001) show that the wage elasticity of informal care supply depends on the availability of the substitutes. Both studies find more negative estimates of the wage elasticity of informal care supply for the individuals with siblings. Nizalova (2006) also finds that the wage elasticity of help with personal needs is smaller in magnitude than the wage elasticity of time spent helping parents with chores, errands, transportation, etc., reflecting possible difficulty of finding a substitute care provider for the personal care.

Although the mentioned findings are suggestive they miss on one important issue - the effect of institutional setting. All of the studies on the wage elasticity of informal care supply have been limited in scope to the United States. And availability of the publicly provided in-home care services and affordable institutional care may be more important factors in the care supply decisions than the presence of siblings. The goal of this paper is to put together estimates of the wage effects on informal care supply and labor supply for the population of the near elderly in different institutional settings related to the long-term care. For that purpose an advantage is taken of the recent data initiative on the study of health and aging around the world and analyze the data from 12 European countries and Israel (Study of Health, Aging, and Retirement in Europe). These data set is similar in its design to the Health and Retirement Study for the US and provide a wide range of information on individuals older than 50. The choice of the countries is determined partly by the availability of data and partly by the variation in the long-term care policies and family traditions in these countries.

It is expected that in the countries like Germany, Sweden, and France where older individuals are offered a wide range of in-home and institutional services at a modest cost (OECD 2005)

¹McGarry (2003) cites that according to the Commonwealth Fund's (1999) report, in the USA the fraction of women providing care is highest among the 45-64 age group (13 percent compared to 10 percent for women of 30-44 years old and 7 percent of women 65 years old or older).

the wage effect on informal care supply will be quite large in magnitude. While in countries with policies that encourage informal care giving, the wage effect will be less negative.

The paper proceeds as follows. Section 2 describes policies related to the formal and informal long-term care in Europe. Section three presents the estimation strategy followed by the data and descriptive analysis in Section 4. Empirical results are discussed in Section 5.

2 Informal and Formal Long-Term Care Policies in Europe

Long-term care is needed by individuals with lengthy physical or mental conditions that make them dependent on someone's assistance in performing activities of daily living. Most of the long-term care services is demanded by the elderly population. Their financing and provision raises greater concern as the population all over the world, and mostly in Europe, is aging. There is large variation in the public coverage of long-term care costs across the European countries (OECD 2005). This reflects variations in the way that both formal and informal long-term care are financed, provided, and supported. Table 1 summarizes long-term care related policies in both formal and informal domains in years 2003-2004. This table does not cover all of the European Union but only countries that participated in the Study of Health, Aging, and Retirement in Europe (SHARE) used in further analysis.

Information on the state of long-term care related policies has been collected from various sources (Wasner 2005; Lamura 2005; Montgomery and Feinberg 2003; Gibson, Gregory, and Panya 2003; Keefe, Fancey, and White 2005) with the major one being OECD (2005) report on the long-term care. As could be seen, most of the countries offer its dependent population universal coverage, with only Greece, Italy, Spain, and Switzerland relying on means testing. The provision of formal care services is financed either by general taxation (e.g. Austria, Denmark, and France) or through the social insurance mechanisms (e.g. Belgium, Netherlands, Switzerland). Germany is an exception in this list with both universal social insurance and general taxation financing for those most needy.

Informal care policies can be divided into three categories: (i) direct financial support,

(ii) policies that address long-term consequences of accepting care giver's status (tax relief and/or pension contributions), and (iii) labor market policies. The information on pension contributions for the informal care givers has not been available for most countries, and the information on tax relief is missing for Belgium and Denmark. Therefore, this study will focus only on direct financial support and paid leave policies. As could be seen from the last three columns of Table 1 most countries (with the exception of Greece, Spain, and Switzerland) offer direct payments either to informal care givers or to care recipients. At the same time very few countries offer paid family leave policies (Belgium, Netherlands, Israel, and Sweden).

Universal coverage and general taxation are associated with more generous long-term care policies. Therefore, it is expected that in such countries people would be more flexible in finding substitutes for own informal care involvement, and, thus, the wage elasticities of both labor supply and informal care supply would be larger in absolute values.

With respect to direct payments and family paid leaves, the a priori expectations are more controversial. On the one hand, similarly to universal coverage and general taxation, they both may imply an easier process of finding a substitute care giver implying more wage responsive care and labor supply. On the other hand, if family paid leave is given only to take care of own parents and direct payments are positively correlated with wages (which is most likely the case), then the opposite may be observed. In this case labor supply may be less responsive and the wage elasticity of informal care supply may take on large positive value. Therefore, it is an empirical question to find out which effect prevails.

Several studies have addressed the interdependence between formal long-term care and informal care provision in Europe and the United States. Most of the studies find that informal and formal care are substitutes when referring to the care for elderly (Bolin et al. 2007; Viitanen 2007). Viitanen (2007) uses variation in government formal long-term care expenditure to identify its effect on individual informal care provision and finds a 6 percentage points decrease in the probability of informal caregiving per a 1000 Euro increase in government expenditure. Van Houtven and Norton (2004) using as instruments the number of siblings and the gender

of children and placement of daughters in the birth order (Carmichael and Charles 2003) to estimate the effect of informal care on elderly formal care use. They find that informal care reduces home health care use and delays nursing home entry. However, all these studies do not account for the effect of employment incentives, while earlier mentioned studies on wage effects on informal care supply do not take into consideration the influence of long-term care policies. Current study aims at filling this gap in research and investigate both effects and their possible interaction.

3 Estimation Strategy

Empirical analysis in this paper is based on the theoretical model outlined in Nizalova (2006) and augmented by the policy variables describing long-term care regime in Europe. Since the goal of this paper is to evaluate potentially interdependent effects of conflicting policies aimed at inducement of the labor supply and informal care to elderly parents from the near elderly, both labor supply and informal care decisions are being analyzed. Two equations are estimated:

$$t_{gi}^* = \alpha_g \log w_i + Z_i \log w_i \delta_g + Z_i \gamma_g + X_i \beta_g + u_{gi} \quad (1)$$

$$t_{gi} = \max(0, t_{gi}^*)$$

$$t_{wi} = \alpha_w \log w_i + Z_i \log w_i \delta_w + Z_i \gamma_w + X_i \beta_w + u_{wi} \quad (2)$$

where t_{gi} = annual hours of informal care for elderly parents, t_{wi} = annual working hours, w_i = individual's hourly wage rate, Z_i is a vector of policies dummies, and X_i is a vector of controls for individual i , discussed later. Interaction terms are included to test whether the effect of wages (that reflect policies aimed at inducing higher labor supply) will be different in environments that offer different conditions for formal and informal long-term care. It is hypothesized that in the presence of more generous long-term care policies, both informal care and labor supply will be more wage responsive, since in such regimes it is easier to substitute for own provision of informal care and devote more hours to market work.

The wage effect on informal care supply is estimated using Tobit procedure, as in most of the studies on informal care supply, to incorporate corner solutions into the estimation. A linear-log specification is chosen for the labor supply². To analyze whether the effect of policies and wages occurs at the extensive or intensive margin, Cragg's (1971) model is used. This model is a two stage hurdle model that allows separate estimation of the effects on the decision to provide care from the decisions on how much care to provide conditional on positive care provision.

The above described empirical strategy is used for the analysis of informal care response and labor supply response to changes in wages and long-term care policies among working population with living parents. The main analysis is supplemented by the analysis of the policy effects and wage effects on the near elderly population who have no living parents or parents-in-law. The goal of this exercise is to check whether the long-term care policies have any effect on the mentioned group that is not related to their risk of becoming long-term caregivers to their elderly parents, but mostly to their own prospects when they become older. A linear-log OLS model for working individuals with no living parents is estimated for both males and females. In addition, a reduced form Probit model allows to investigate full effect of the policies on the labor supply decisions of near elderly and elderly population with no living parents. This model is compared to a similar reduced-form model for those who have at least one parent or parent-in-law alive.

Econometric Issues with the Wage Effect Estimation

In the theoretical model of informal care provision, wage rates are assumed to be exogenous. However, this is unlikely to be true empirically. Many of the factors that enter the theoretical supply/demand functions are not available in the data: price of formal care, the parameters of the care production function, as well as unobserved personality traits (responsibility, respect for seniors, etc.) may not be available to researchers.

²Mroz (1987) used a similar econometric model to test different specification issues and their effect on labor supply elasticity estimates.

Lack of the information on these factors is likely to lead to problems associated with omitted variables. The estimates of the wage elasticity of informal care supply would not be biased if the assumption of zero correlation between wages and omitted variables were plausible. However, in the current setting this is a very restrictive assumption. For example, the price of formal care is likely to be higher for people living in high-wage areas. This positive correlation between formal care prices and wages would result in an upward biased estimate of the wage effect on informal caregiving time. Also, some personality traits of an individual may be positively correlated with both, productivity in caregiving and productivity on the job. So, omitting these controls would also result in an upward bias.

Another important factor is the productivity of the care giver in caregiving activities. Failure to control for productivity in caregiving may have ambiguous implications for the estimates. On the one hand, the productivity in caregiving may be positively correlated with the productivity on the job leading to an upward bias in the wage effect estimates. On the other hand, if specialization takes place, the productivity in caregiving may be negatively correlated with the productivity on the job, leading to a downward bias in the wage effect estimates. In practice, it is likely that some individuals are more productive in everything or their job requires similar characteristics as caregiving tasks do, and some individuals are highly specialized being productive either on the job or at home, but not both. Thus, it is difficult to infer the average effect in the population.

Nizalova (2006) offers several sets of instruments with the most preferred one being an interaction of the state industry structure (trade-impacted concentrated industries, competitive industries, other durables industries, government, and services) with the individual educational attainment. She finds that after the instrumenting the wage elasticity of both informal care supply and labor supply are much larger in magnitude than without instrumenting. Nizalova's (2006) findings show that previous estimates of the wage elasticity of informal care supply are upward biased. Unfortunately, such a technique requires access to geographical identifying information, which is not currently available within the SHARE countries.³ Due

³An attempt has been made to use instrumental variables suggested by Nizalova (2006) at the country level. Although these

to this drawback, the current study does not aim at estimating the exact magnitudes of the wage elasticity of informal care supply to elderly parents, but rather compare the magnitudes between countries with different long-term care policies. It is expected that in the countries with generous policies the wage elasticity of informal care supply will be higher, and in the countries with more stringent requirements it will be lower. Of course, the underlying assumption here would be that the degree of the wage endogeneity does not depend on the long-term care policies features and that the direction of the bias in the interaction term coefficient is the same as in the main wage effect estimates.

4 Data and Descriptive Analysis

The analysis in the paper is based on the data from the Survey of Health, Aging, and Retirement in Europe (SHARE). It is a cross-national database that contains information on 31,115 individuals over the age of 50 years old and their spouses from 11 European countries and Israel. However, Israel is not included into empirical estimation of the wage effect since in the current release of the data no information on wages and informal care for this country is available.

For the purpose of the current analysis the data is restricted only to individuals beyond 50 years of age but not older than 80 years since SHARE respondents are treated as potential caregivers to their elderly parents.⁴ The main analysis focuses on working individuals⁵ who can potentially provide time to their parents or parents-in-law (both are referred to as “parents” throughout the paper). In the present study parents (including in-laws) are treated as a group, similar to Ioannides and Kan (2000) and Nizalova (2006).

Focusing on working individuals only may raise the issue of selectivity bias, especially in the labor supply context. However, Mroz (1987) shows that even for the sample of married women, the population for which the selectivity issue has always been considered most important,

IVs performed quite well in terms of the first stage statistics, they do not pass the test for overidentifying restrictions leading to invalid estimates of the wage effects. The results from the exercise are available upon request.

⁴There are several observations on individuals older than 80 years who work and also have living parents. However, they seem to be outliers most likely due to the reporting error. This issue can be reconsidered once the next wave of SHARE becomes available.

⁵Workers include those who report positive working hours but are not self-employed in the year 2003.

selection does not have a significant impact on the estimates of the wage elasticity of labor supply as long as labor market experience is not treated as an exogenous determinant of wages (i.e., as an instrument).

Dependent Variables

The dependent variables used in the main analysis are annual working hours and annual hours spent helping parents with personal care, household tasks, and paperwork. Annual working time is the product of usual weekly hours of work and number of weeks worked across all jobs. In addition, binary variables indicating provision of informal care or employment status are studied.

Explanatory Variables

The hourly wage rate is constructed by dividing earnings from the main job over a year by the standardized annual working hours to avoid the negative division bias⁶. This variable used as a proxy for policies that aim at inducing labor supply. Most often such policies use fiscal measures which usually translate into changes in wages.

The set of individual controls in full specifications include the following: age, age squared, education, current non-wage income defined as capital income, marital status (sample size does not allow for a separate treatment of married versus single individuals), immigrant status, number of young children (0-6 years old), number of 6-18 year-old children (Mroz, 1987), number of siblings,⁷ and region dummies (Blundell, 1999).

In addition to the individual characteristics, all of the specifications in the main analysis on the sample of potential caregivers include characteristics of living parents. These characteristics refer to the set of all living parents and include the number of surviving parents (maximum four), the ratio of the number of mothers to the number of living parents, the age of the oldest parent, and an indicator if at least one of the parents is in poor health.⁸ It is

⁶Annual working hours are calculated as weeks worked last year multiplied by 40 if the individual reported usual weekly hours being greater than 25 and by 20 if the reported usual weekly hours are less than or equal to 25 (Kimmel and Kniesner, 1998).

⁷For married individuals this includes both siblings and siblings-in-law.

⁸HRS sample contains a richer set of parental characteristics, e.g. the indicators if at least one of the parents (i) is single,

expected that all of these variables have positive effects on caregiving hours and negative on labor supply as they reflect higher caregiving needs of the parents.

Sample Description

The main sample is limited to working, not self-employed⁹, age-eligible individuals who have at least one parent or parent-in-law alive in year 2004. The resulting SHARE sample consists of 1,739 males and 1,527 females who have complete data on all of the variables of interest (See Column (1) in Tables 3-4 for the summary statistics). Additional samples are used for the complimentary analysis of the policy effects on the labor supply of individuals with and without living parents. These samples include: all individuals with living parents (Column (2) in Tables 3-4), working individuals with no living parents (Column (3)), and all individuals with no living parents (Column (4)).

As could be seen from the mentioned Tables, the prevalence of care giving is quite high: 29 percent of working males and 37 percent of working females provide care to their elderly parents. However, the amount of care provided is almost two times larger among females than it is among males. An interesting point is also that the difference between care hours in the general population of individuals with living parents and those who are working is quite large for females, but is not very different for males. Average annual hours of care provided by working females is almost 30 percent lower than that for the general population. This supports the argument that the effect of the family reasons on the labor supply decisions of females is greater than that of males.

Working individuals with living parents have the highest levels of education, more children, and more living parents among both males and females. This may be reflective of the fact that they are also on average younger than the other groups considered. Average number of living parents is 1.74 for males and 1.56 for females in the sample of working individuals. This may be related to the fact that males are 10 percent more likely to be married. As males

(ii) has memory related disease, and (iii) is identified by the respondent as being financially worse off or better off than the respondent. However, for the sake of comparability, the same set of controls is used for all countries.

⁹Self-employed are excluded to follow the labor supply literature and thus allow for the comparison of the estimated labor supply elasticities to the earlier estimates.

are more likely to have younger spouses, their parents-in-law are more likely to be younger. The prevalence of having at least one parent in poor health is comparable among males and females and is around 30 percent, being slightly smaller for the working individuals.

The main variables of interest are hourly wages and their interactions with the indicator variables reflecting long-term care policies in the country of respondent's residence. PPP adjusted hourly wages are measured in Euros. Policy indicators include four variables that take the value of one if a country has (i) the universal formal long-term care coverage (UC) compared to the means-tested coverage or no coverage at all, (ii) the formal long-term care system that is financed by general taxation (GT) or by both general taxation and social insurance (like in Germany, for example) compared to systems financed entirely by social insurance or no system, (iii) informal care legislation that implies direct payments (DP) either to care-givers or care-recipients¹⁰, (iv) family leave entitlements (LP) with no distinction for the duration of the allowed leave.

Men earn per hour on average 4-5 Euros more than women, with the difference being smaller for the people with no living parents. This may stem from the fact that individuals with no living parents are on average 2-3 years older. In the main sample of working individuals with living parents, 79 percent of males and 85 percent of females live in countries that provide universal coverage for the formal long-term care. 63 percent of males and 70 percent of females live in the countries that finance the formal long-term care through the general taxation. With respect to the informal care policies, direct payment either to care recipients or to care givers affects 84 percent of males and 88 percent of females. The labor policies that offer workers family leaves are less spread and in the main sample are observed for the 41 percent of the male population and for the 44 percent of the female population.

With respect to the labor supply, the percentage of employed individuals is much higher among individuals with living parents (53 percent versus 17 percent for males with no living parents and 44 percent versus 13 percent for females). Similarly among working individuals,

¹⁰An attempt has been made to separate this variable to distinguish the effect depending on who gets the payments. However, the estimation results show virtually no difference between the effect of this policy if the payment is made to the care giver or the care recipient. Both the significance and the magnitude of the estimated coefficients have very slight differences.

those who have living parents work longer hours than those who do not (about 100 hours more for males and 110 hours more for females).

5 Empirical Results

Figures 1 and 2 show the two-way relationship between wages and annual working time and annual time devoted to informal care using a locally weighted regression (LOWESS). It shows that for the majority of men and women the labor supply is upward sloping with the female labor supply being more elastic than the males' one. There is no obvious relationship between wages and informal care supply that is virtually flat for males and shows both upward sloping and downward sloping segments for females. This may stem from the fact that the sample includes individuals from various European countries and the method used estimates a simple two-way relationship without accounting for other influential factors. Examining Table 2 reveals significant variation in the informal care prevalence and supply of hours from country to country. In terms of prevalence both among males and females Sweden, Netherlands, Denmark, and Belgium are leading the list. But Southern countries, Spain and Italy, have the highest supply of care hours conditional on the provision of informal care to elderly parents, while the earlier mentioned countries have lowest supply of hours of informal care once it is conditioned on positive care provision. This section will present results from the multivariate analysis, first focusing on care supply, then on labor supply, and will conclude with the overall interpretation of the estimated policy effects.

Care Supply

Tables 5-6 show the results from the estimation of the informal care equation for males and females respectively. As could be seen from the Tobit estimates in Column (1) the effect of wages on female and male informal care supply to their elderly parents is very small in magnitude and not statistically significant. However, after controlling for the policy effects and the interaction terms with the wages (Columns (2)), the results show statistically significant positive effect of wages on informal care supply of women and larger positive but not statisti-

cally significant effect of wages on male informal care supply. Various features that describe the long-term care policies make the wage response estimates differ. For example, for males the wage response in countries with universal long-term care coverage is negative and quite large in magnitude. This goes in line with the hypothesis that in the circumstances, when it is easier to substitute for own involvement into care for elderly parents, adult children's response to higher wages will be greater and they will reduce informal care supply. The result is similar for females. Financing long-term care system through general taxation and availability of paid family leaves does not have any significant effect on the informal care response to wages. At the same time, in the presence of the direct payment for care giving the wage effect is more positive. Surprisingly, compared to men, this effect is almost two times smaller for women and is not statistically significant.

The Cragg's model allows distinguishing between extensive and intensive margins. Results in Columns (3) and (4) show that there is virtually no policy effect on the wage response when deciding on whether to provide care. The only exception is the wage response of female's decision to provide care when the universal coverage is present. In such an environment, a 10% increase in wages make women 3.7% less likely to help their elderly parents. The situation differs when looking at the intensive margin. Among those who do provide care to their parents, there is no effect of policies on the wage response for females, but virtually all of the effect of policies on males' informal care response to wages comes from the intensive margin. In the presence of universal coverage males with higher wages who do provide care provide significantly less hours per year. And the presence of the direct payments increases the care hours' response to wages almost by the same amount.¹¹

Studying the reduced-form effects on all (working and non-working) individuals with parents (Columns (5)) shows no significant effect of universal coverage on the probability of being

¹¹Another interesting feature revealed by the Cragg's model is that parental characteristics are much more influential in the decision to provide care and much less so in the decision on how many hours to provide. Also, individuals living in Northern Europe are significantly more likely to provide care, but if they do so, they provide much less hours than those in Western Europe, with the effect being more pronounced for males. This is reversed for Southern Europe. There, controlling for other factors, both males and females are as likely to provide care to their parents as people in Western Europe, but if they do become care givers females in Southern Europe provide significantly more hours of care than in other countries. Tables with all the results are presented in the Appendix.

a caregiver. General taxation makes both males and females significantly less likely to accept the caregiver roles, while the effect of direct payment and paid family leave is positive.

Labor Supply

Tables 7-8 show the results from the estimation of the labor supply equations for the samples of individuals with and without living parents. Comparing the wage response of these groups of individuals (Columns (1) and (4)), it could be seen that both males and females without living parents have more elastic labor supply at the intensive margin. After controlling for the policy effects for individuals with living parents, it has been found that almost all of the policies make male's labor supply more elastic, with the only exception of paid leave policy which effect is positive but not statistically significant. For females the effects of universal coverage and direct payment for caregiving on wage response are not statistically significant, while the effect of the paid family leave policy and general taxation is positive and statistically significant.

Comparing columns (3) and (6) shows that the policy effect on the labor supply at the extensive margin is much smaller in magnitude for both males and females without living parents, but the direction of the effect is the same. Universal long-term care coverage makes individuals less likely to participate in the labor market, and this effect is similar in magnitude for those with and without living parents (it ranges from 11% to 15%). Direct payment for caregiving has also negative effect on employment, while the effect of paid family leave and general taxation is positive.

Interpreting the Estimates of Wage Effects

Table 9 summarizes the results of current analysis by presenting the wage elasticities of informal care supply and labor supply under different long-term care policy regimes. Besides, this table shows some sensitivity analysis by presenting estimates for different groups of population: excluding individuals with wages higher than 50 Euros and excluding individuals

with no siblings. The first row shows the wage elasticity estimates in the environment with neither formal nor informal long-term care policies. This elasticity is rather small and not always statistically significant. However, compared to the estimates from earlier studies from the United States,¹² they are more positive. As can be seen, the most robust result is the wage elasticity of informal care supply when the universal coverage for formal long-term care is available. In this case, as expected, the availability of substitutes allows individuals greater flexibility in their time allocation. It should be remembered that the estimates presented in the table are the upper bound for the informal care supply and the lower bound for the labor supply (Nizalova 2006). So, the true estimates of the wage elasticity of informal care supply under the universal coverage should be expected to be even more negative. There is no change in the wage elasticity estimates of labor supply for females under the UC regime, but they become more positive for males, which, taking into account the downward bias present in the estimate, shows that the universal coverage makes male labor supply slightly more elastic.

General taxation does not alter the wage elasticity of informal care supply neither for males nor for females, but its presence makes both males' and females' labor supply more responsive to wages. Direct payments for caregiving make the wage elasticity of both labor supply and informal care supply more positive. However, the estimates are not robust across the specifications. Paid family leave policy has virtually no effect on the wage elasticity of informal care supply, but it has a significant impact on the wage elasticity of females' labor supply.

6 Conclusion

Following recent debates over the future sustainability of old age support systems in developed countries, this paper analyzes possible interactions between two policy suggestions. One policy aims at encouraging higher labor supply, especially among women and near elderly. The other aims at stimulating informal care provided to the elderly by family members. This paper

¹²Nizalova (2006) shows the estimates from earlier studies in Table 1. They range from -0.78 to 0.18, while her own estimates before instrumenting are found to be around -0.16

specifically targets near elderly males' and females' labor supply decisions and their decisions about taking care of their elderly parents to disentangle the effect of earlier mentioned policies on these decisions.

Four policy features related to the long-term care are considered. First two reflect the way of provision and financing of formal long-term care: universal coverage versus means-tested coverage, and financing through general taxation versus through social insurance. The last two refer to the informal care: direct payments for care giving paid either to the care recipient or to the care giver, and availability of paid family leaves to take care of elderly parents.

The main finding is that the universal coverage for formal long-term care makes individual informal care supply more elastic. This result is robust for both males and females through different specifications. The most preferred estimates show that a 10 percent increase in wages under the universal coverage regime will lead to about 24 percent decline in care provided by males and about 13 percent decline in care provided by females. The only other policy feature among those considered that significantly alters the wage response, but only for males, is the presence of direct payments for care giving. In such circumstances higher wages lead to significantly larger provision of informal care.

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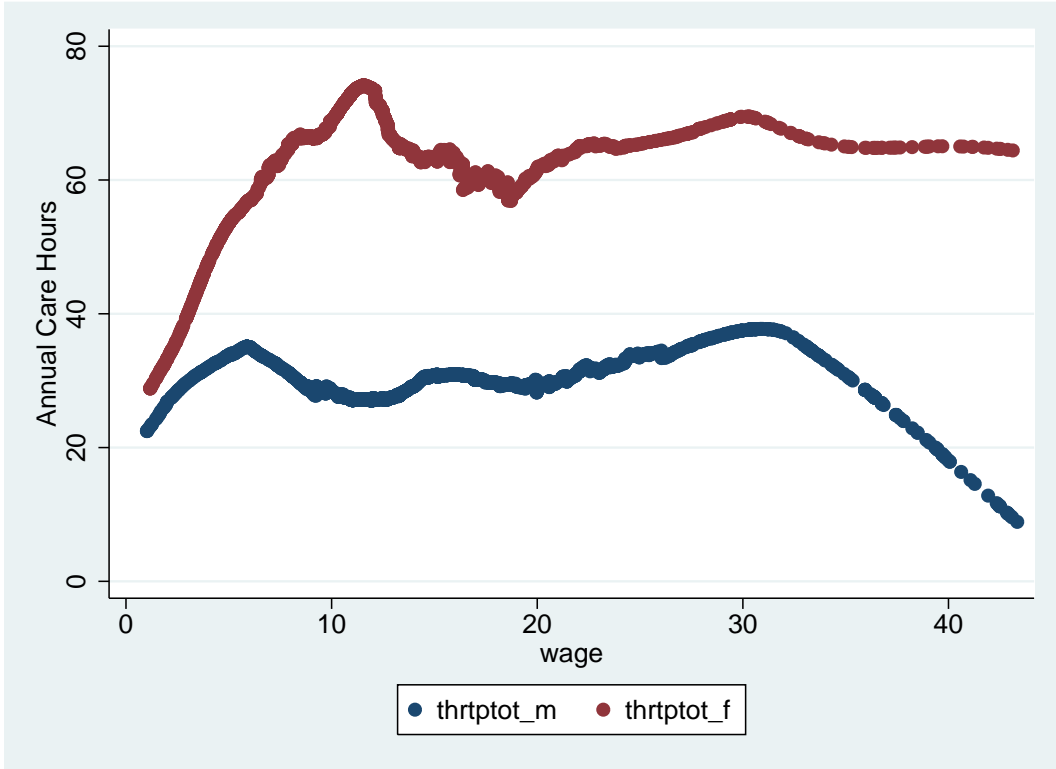


Figure 1: Informal Care Supply By Wage and By Gender

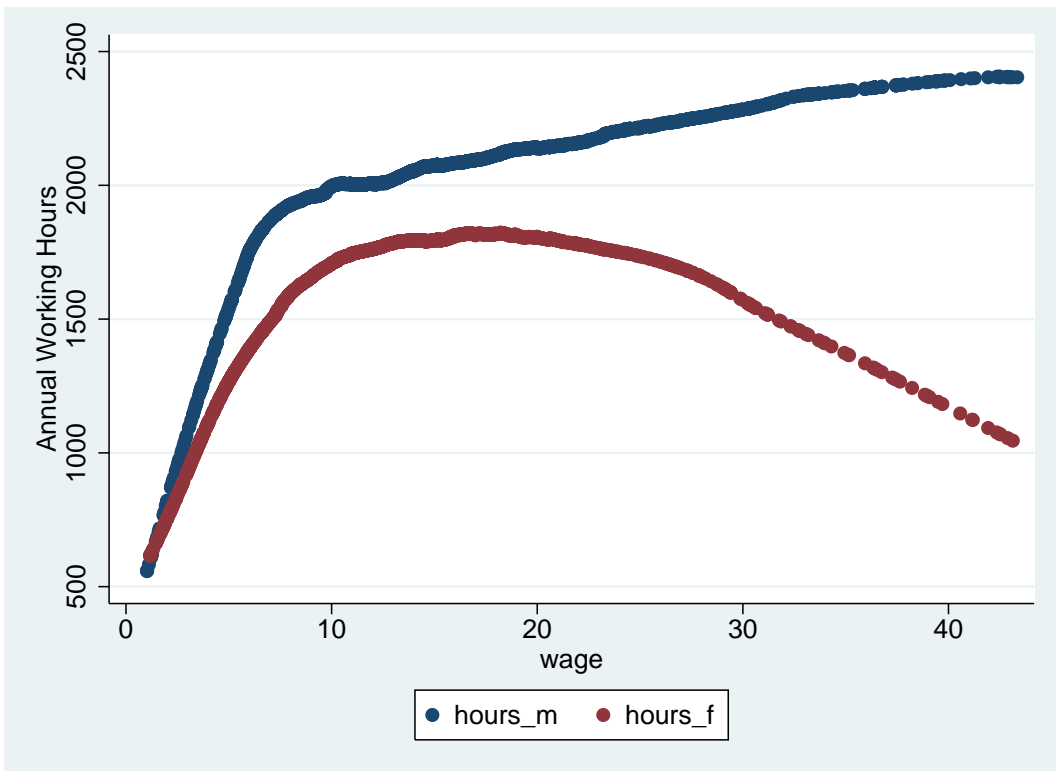


Figure 2: Informal Care Supply When Universal Long-Term Care Coverage is Guaranteed

Table 1: Long-Term Care and Informal Care Policies in Europe

Country	Formal Care			Informal Care		
	Universal Coverage	General Taxation	Social Insurance	Direct Payments	Tax Relief	Paid Leave
	UC	GT	SI	DP	TX	LP
Austria	Y	Y	N	Y	Y	N
Belgium	Y	N	Y	Y		Y
Denmark	Y	Y	N	Y		N
France	Y	Y	N	Y	Y	N
Germany	Y	Y	Y	Y	Y	N
Greece	N	N	Y	N	Y	N
Israel	Y	N	Y	Y	Y	Y
Italy	N	Y	N	Y	N	N
Netherlands	Y	N	Y	Y	Y	Y
Spain	N	Y	N	N	Y	N
Sweden	Y	Y	N	Y	Y	Y
Switzerland	N	N	Y	N	N	N

Table 2: Descriptive Statistics on Informal Care By Country

Country	Males			Females		
	Annual Care Hours	Prevalence of Care	Care Hours If Care > 0	Informal Care Hours	Prevalence of Care	Care Hours If Care > 0
	(1)	(2)	(3)	(4)	(5)	(6)
Austria	73.97 (231.80)	0.23	319.00 (400.27)	103.06 (274.16)	0.26	395.06 (422.52)
Belgium	60.50 (122.15)	0.37	165.57 (153.47)	161.95 (404.37)	0.44	364.96 (544.31)
Denmark	23.58 (59.64)	0.36	65.35 (84.81)	63.66 (237.29)	0.40	157.23 (354.11)
France	33.82 (178.78)	0.24	141.21 (346.17)	41.46 (116.61)	0.26	158.69 (183.82)
Germany	47.71 (138.41)	0.29	162.22 (217.06)	85.65 (209.42)	0.38	226.65 (291.07)
Greece	31.54 (98.72)	0.18	174.08 (172.56)	104.30 (250.24)	0.34	303.41 (352.96)
Italy	103.79 (384.21)	0.18	570.86 (758.86)	95.13 (350.45)	0.19	494.70 (690.16)
Netherlands	26.73 (79.80)	0.32	82.43 (123.16)	101.48 (268.88)	0.46	218.25 (361.66)
Spain	22.30 (132.64)	0.05	446.00 (459.74)	100.00 (398.25)	0.15	671.43 (876.55)
Sweden	31.58 (84.64)	0.35	91.01 (123.79)	69.51 (240.76)	0.45	154.61 (340.81)
Switzerland	11.61 (41.31)	0.22	53.82 (77.67)	54.94 (198.69)	0.34	162.19 (319.59)
Total sample	39.72 (146.75)	0.28	140.40 (249.15)	83.90 (261.67)	0.37	224.19 (389.43)

Table 3: Descriptive Statistics: Males

	Living parents		No living parents	
	Working (1)	Total (2)	Working (3)	Total (4)
Sample Size	1739	3966	892	6257
A. Dependent Variables				
Annual informal care hours	41.31 (168.49)	47.09 (199.08)	11.79 (95.63)	4.36 (67.74)
Prevalence of care	0.29	0.23	0.04	0.01
Annual working hours	2085.35 (604.35)		1984.03 (730.60)	
Employed	1.00	0.53	1.00	0.17
B. Variables of Interest				
Hourly Wage	18.08 (9.96)		16.17 (9.51)	
UC	0.79	0.74	0.76	0.70
GT	0.63	0.61	0.66	0.64
DP	0.84	0.81	0.82	0.80
LP	0.41	0.37	0.42	0.36
C. Control Variables				
Non-labor income	7.25 (19.13)	7.14 (19.45)	6.34 (17.22)	5.5 (18.51)
Age	54.68 (3.68)	57.8 (5.89)	58.33 (5.57)	67.14 (7.61)
Education	12.24 (3.73)	11.4 (4.17)	11.64 (4.10)	9.99 (4.65)
If immigrant	0.07	0.08	0.08	0.08
If married	0.87	0.88	0.76	0.79
Children less than 6	0.01 (0.13)	0.01 (0.11)	0.01 (0.10)	0.003 (0.06)
Children 6-18	0.25 (0.61)	0.17 (0.51)	0.16 (0.56)	0.04 (0.27)
Number of siblings	4.30 (3.42)	4.30 (3.40)	3.80 (3.37)	3.68 (3.27)
Number of parents	1.74 (0.86)	1.57 (0.79)		
Ratio of mothers to number of parents	0.73 (0.32)	0.76 (0.32)		
Oldest parent's age	82.24 (5.63)	83.67 (6.23)		
If parent sick	0.30	0.31		
Northern Europe	0.25	0.17	0.28	0.16
Southern Europe	0.18	0.23	0.18	0.27

Table 4: Descriptive Statistics: Females

	Living parents		No living parents	
	Working (1)	Total (2)	Working (3)	Total (4)
Sample Size	1527	4165	892	8452
A. Dependent Variables				
Annual informal care hours	86.02 (271.21)	128.57 (392.72)	24.41 (235.44)	13.89 (180.53)
Prevalence of care	0.37	0.32	0.05	0.02
Annual working hours	1677.00 (614.23)		1589.63 (711.24)	
Employed	1.00	0.44	1.00	0.13
B. Policy Variables of Interest				
Hourly Wage	13.39 (7.42)		12.24 (7.27)	
UC	0.85	0.73	0.80	0.67
GT	0.70	0.63	0.72	0.64
DP	0.88	0.81	0.85	0.78
LP	0.44	0.38	0.41	0.33
C. Control Variables				
Non-labor	7.43	7.05	4.55	6.28
Income	(20.88)	(21.32)	(15.87)	(18.41)
Age	54.29 (3.47)	56.33 (5.10)	57.29 (4.84)	66.48 (7.85)
Education	12.21 (3.67)	10.84 (4.09)	11.63 (3.93)	8.92 (4.45)
If immigrant	0.09	0.09	0.1	0.08
If married	0.78	0.81	0.66	0.61
Children less than 6	0.003 (0.05)	0.001 (0.04)		
Children 6-18	0.11 (0.40)	0.08 (0.34)	0.06 (0.29)	0.02 (0.15)
Number of siblings	3.86 (3.08)	3.99 (3.22)	3.60 (3.15)	3.35 (3.09)
Number of parents	1.56 (0.75)	1.45 (0.68)		
Ratio of mothers to number of parents	0.75 (0.32)	0.78 (0.32)		
Oldest parent's age	82.6 (5.49)	84.06 (5.93)		
If parent sick	0.27	0.30		
Northern Europe	0.33	0.19	0.34	0.15
Southern Europe	0.11	0.24	0.15	0.30

Table 5: Impact of Wages and Long-Term Care Policies on Informal Care Hours: Males

Annual Care Hours	Tobit (1)	Tobit (2)	Probit (3)	OLS (4)	Probit (5)
Hourly Wage	17.525 (23.885)	81.228 (59.148)	0.109+ (0.057)	-58.057 (64.329)	
UC		1,156.945** (294.624)	0.143 (0.235)	3,338.376** (360.208)	-0.041 (0.057)
GT		41.505 (186.260)	0.016 (0.184)	295.340 (207.971)	-0.062* (0.029)
DP		-746.514* (337.077)	0.210 (0.207)	-3,647.785** (430.720)	0.093** (0.031)
LP		-4.356 (187.159)	-0.007 (0.185)	128.297 (185.862)	0.029 (0.027)
UC-wage		-484.091** (102.670)	-0.045 (0.107)	-1,425.209** (128.781)	
GT-wage		-45.267 (66.547)	-0.048 (0.066)	-85.075 (71.286)	
DP-wage		405.753** (124.614)	-0.040 (0.128)	1,548.771** (155.919)	
LP-wage		0.071 (66.522)	0.000 (0.066)	-46.379 (65.229)	
Observations	1739	1739	1739	498	3966
Uncensored	498	498			
Chi/R-squared	115.20	167.42	183.03	0.37	362.08
sigma:Constant	365.624** (12.631)	351.762** (12.128)			
Observed $P(y > 0)$			0.2864		0.2312
Pred. $P(y > 0 x)$			0.2621		0.2076

Notes: 1. Additional covariates include (i) individual characteristics (number of children less than 6 years old and number of children 6-18 years old, age, age squared, non-labor income, education, number of siblings, and indicators if an individual is an immigrant, if is married, and regional dummies) and (ii) parental characteristics (number of living parents, ratio of mothers to total number of living parents, oldest parent's age, and an indicator if at least one parent is in poor health). Full set of estimates see in Appendix. 2. Coefficient estimates are reported for the Tobit model. 3. Marginal effects are reported for the Probit model.

Table 6: Impact of Wages and Long-Term Care Policies on Informal Care Hours: Females

Annual Care Hours	Tobit (1)	Tobit (2)	Probit (3)	OLS (4)	Probit (5)
Hourly Wage	4.161 (31.382)	166.257* (73.410)	0.095 (0.059)	106.513 (84.121)	
UC		1,355.375* (582.957)	0.533** (0.088)	-616.984 (926.190)	-0.044 (0.056)
GT		-250.439 (210.626)	-0.148 (0.179)	-173.995 (229.528)	-0.074* (0.030)
DP		-668.017 (608.101)	-0.657** (0.223)	1201.968 (953.071)	0.077* (0.034)
LP		226.909 (207.647)	0.238 (0.169)	11.713 (213.179)	0.056+ (0.029)
UC-wage		-430.533+ (221.835)	-0.378* (0.191)	303.215 (338.732)	
GT-wage		27.586 (82.886)	0.002 (0.069)	51.477 (89.416)	
DP-wage		226.732 (238.319)	0.285 (0.204)	-479.378 (354.531)	
LP-wage		-79.427 (80.914)	-0.085 (0.067)	3.874 (82.295)	
Observations	1527	1527	1527	572	4165
Uncensored	572	572			
Chi/R-squared	76.08	118.69	152.81	0.09	315.23
sigma:Constant	509.859** (16.344)	501.634** (16.025)			
Observed $P(y > 0)$			0.3746		0.3241
Pred. $P(y > 0 x)$			0.3587		0.3112

See Notes to Table 5

Table 7: Impact of Wages and Long-Term Care Policies on Labor Supply: Males

Annual Work Hours	Living Parents			No Living Parents		
	OLS (1)	OLS (2)	Probit (3)	OLS (4)	OLS (5)	Probit (6)
Hourly Wage	166.570** (29.509)	-468.914** (63.966)		446.982** (40.068)	-127.608 (104.306)	
UC		-1,272.594** (340.244)	-0.154* (0.071)		-2,763.579** (456.104)	-0.141** (0.038)
GT		-501.602* (207.527)	0.160** (0.036)		-552.525* (261.755)	0.049** (0.013)
DP		-792.799* (366.953)	-0.182** (0.045)		1,108.890* (469.770)	-0.065** (0.023)
LP		-164.568 (227.102)	0.171** (0.036)		-410.664 (269.751)	0.047** (0.016)
UC-wage		311.337* (126.111)			925.658** (177.067)	
GT-wage		271.018** (76.878)			314.113** (98.956)	
DP-wage		253.339+ (143.889)			-571.841** (195.779)	
LP-wage		103.931 (81.678)			202.999* (100.713)	
Observations	1739	1739	3966	864	864	6257
Chi/R-squared	0.06	0.14	1657.52	0.19	0.26	2076.2
Observed $P(y > 0)$			0.5308			0.1736
Pred. $P(y > 0 x)$			0.4965			0.0918

See Notes to Table 5

Table 8: Impact of Wages and Long-Term Care Policies on Labor Supply: Females

Annual Work Hours	Living Parents			No Living Parents		
	OLS (1)	OLS (2)	Probit (3)	OLS (4)	OLS (5)	Probit (6)
Hourly Wage	256.880** (29.535)	-100.204 (65.399)		307.861** (39.521)	57.917 (83.574)	
UC		-575.753 (377.574)	-0.141* (0.064)		-1,270.572** (396.630)	-0.118** (0.026)
GT		-321.478+ (191.360)	0.220** (0.031)		-359.445 (252.577)	0.045** (0.007)
DP		-103.678 (402.177)	-0.146** (0.045)		690.412+ (418.705)	-0.023+ (0.012)
LP		-634.357** (193.191)	0.128** (0.033)		26.851 (263.023)	0.033** (0.009)
UC-wage		217.835 (151.889)			480.686** (164.152)	
GT-wage		254.190** (76.139)			280.746** (104.276)	
DP-wage		-72.113 (169.573)			-354.554+ (189.027)	
LP-wage		289.302** (75.662)			19.839 (104.875)	
Observations	1527	1527	4165	892	892	8452
Chi/R-squared	0.14	0.18	1324.83	0.15	0.19	2386.71
Observed $P(y > 0)$			0.4418			0.1305
Pred. $P(y > 0 x)$			0.3972			0.0435

See Notes to Table 5

Table 9: Wage Elasticity of Informal Care Supply And Labor Supply

	Males			Females		
	Main Sample (1)	Wage < 50 (2)	At least one sibling (3)	Main Sample (4)	Wage < 50 (5)	At least one sibling (6)
Sample Size	1739	1717	1553	1527	1522	1355
Informal Care Supply						
No LTC policies	0.3979	0.5473+	0.2527	0.5163*	0.5375*	0.5024*
Universal coverage	-2.3712**	-0.5820	-2.8735**	-1.3370*	-1.3675*	-1.6061**
General taxation	-0.2217	-0.3296	0.1084	0.0857	0.1064	0.0349
Direct Payments	1.9875**	0.1924	2.2130**	0.7041	0.6491	0.9917
Paid Leave	0.0003	-0.1411	0.5068	-0.2467	-0.2151	-0.1856
Labor Supply						
No LTC policies	-0.2249**	-0.1762**	-0.2364	-0.0598	-0.0448	-0.0634
Universal coverage	0.1493*	0.1833**	0.1769**	0.1299	0.1312	0.1162
General taxation	0.1300**	0.0959*	0.1326**	0.1516**	0.1474**	0.1400**
Direct Payments	0.1215+	0.0751	0.1222**	-0.0430	-0.0535	-0.0117
Paid Leave	0.0498	0.0453	0.0534	0.1725**	0.1685**	0.1670**

APPENDIX

Table A1. Impact of Wages and Long-Term Care Policies on Informal Care Hours: Males

Annual Care Hours	Tobit (1)	Tobit (2)	Probit (3)	OLS (4)	Probit (5)
Hourly Wage	17.525 (23.885)	81.228 (59.148)	0.109+ (0.057)	-58.057 (64.329)	
UC		1,156.945** (294.624)	0.143 (0.235)	3,338.376** (360.208)	-0.041 (0.057)
GT		41.505 (186.260)	0.016 (0.184)	295.340 (207.971)	-0.062* (0.029)
DP		-746.514* (337.077)	0.210 (0.207)	-3,647.785** (430.720)	0.093** (0.031)
LP		-4.356 (187.159)	-0.007 (0.185)	128.297 (185.862)	0.029 (0.027)
UC-wage		-484.091** (102.670)	-0.045 (0.107)	-1,425.209** (128.781)	
GT-wage		-45.267 (66.547)	-0.048 (0.066)	-85.075 (71.286)	
DP-wage		405.753** (124.614)	-0.040 (0.128)	1,548.771** (155.919)	
LP-wage		0.071 (66.522)	0.000 (0.066)	-46.379 (65.229)	
Non-labor Income	1.491** (0.561)	1.248* (0.552)	0.001 (0.001)	0.432 (0.573)	0.001 (0.0003)
Age	-70.616 (69.613)	-74.827 (67.264)	-0.077 (0.066)	-23.563 (68.344)	-0.041* (0.021)
Age squared	0.503 (0.616)	0.549 (0.595)	0.001 (0.001)	0.207 (0.607)	0.0003 (0.0002)
Education	6.802+ (3.629)	7.290* (3.686)	0.009* (0.004)	-9.074* (3.861)	0.010** (0.002)
If immigrant	-209.191** (56.555)	-183.516** (55.232)	-0.154** (0.034)	-41.441 (63.611)	-0.111** (0.019)
If married	-38.246 (34.989)	-37.966 (34.113)	-0.035 (0.035)	7.212 (33.159)	-0.002 (0.021)
Children less than 6	-22.830 (106.461)	-27.697 (103.088)	-0.097 (0.102)	180.567 (121.840)	-0.033 (0.069)
Children 6-18	1.222 (19.958)	-2.232 (19.331)	-0.006 (0.019)	9.014 (18.382)	-0.009 (0.014)
Number of siblings	-12.040** (3.862)	-13.457** (3.807)	-0.011** (0.004)	-7.813* (3.958)	-0.011** (0.002)

Table A1. Impact of Wages and Long-Term Care Policies on Informal Care Hours: Males (Cont.)

	Tobit (1)	Tobit (2)	Probit (3)	OLS (4)	Probit (5)
Annual Care Hours					
Number of parents	26.823+ (14.940)	28.992* (14.570)	0.050** (0.014)	-28.747* (14.009)	0.045** (0.009)
Ratio of mothers to total number of alive parents	108.271** (40.774)	97.380* (39.565)	0.115** (0.039)	-13.520 (40.256)	0.063** (0.023)
Oldest parent's age	10.750** (2.266)	10.130** (2.209)	0.010** (0.002)	4.130+ (2.148)	0.008** (0.001)
If at least one parent is in poor health	87.288** (25.073)	86.622** (24.354)	0.079** (0.025)	53.631* (23.242)	0.047** (0.015)
Northern Europe	4.510 (27.201)	40.360 (37.823)	0.107** (0.040)	-110.168** (37.170)	0.069** (0.026)
Southern Europe	-77.209* (35.504)	25.158 (86.893)	-0.022 (0.080)	116.544 (88.613)	-0.082* (0.039)
Observations	1739	1739	1739	498	3966
Uncensored observations	498	498			
Chi-Square/R-squared	115.20	167.42	183.03	0.37	362.08
sigma:Constant	365.624** (12.631)	351.762** (12.128)			
Observed $P(y > 0)$			0.2864		0.2312
Pred. $P(y > 0 x)$			0.2621		0.2076

Table A2. Impact of Wages and Long-Term Care Policies on Informal Care Hours: Females

Annual Care Hours	Tobit (1)	Tobit (2)	Probit (3)	OLS (4)	Probit (5)
Hourly Wage	4.161 (31.382)	166.257* (73.410)	0.095 (0.059)	106.513 (84.121)	
UC		1,355.375* (582.957)	0.533** (0.088)	-616.984 (926.190)	-0.044 (0.056)
GT		-250.439 (210.626)	-0.148 (0.179)	-173.995 (229.528)	-0.074* (0.030)
DP		-668.017 (608.101)	-0.657** (0.223)	1201.968 (953.071)	0.077* (0.034)
LP		226.909 (207.647)	0.238 (0.169)	11.713 (213.179)	0.056+ (0.029)
UC-wage		-430.533+ (221.835)	-0.378* (0.191)	303.215 (338.732)	
GT-wage		27.586 (82.886)	0.002 (0.069)	51.477 (89.416)	
DP-wage		226.732 (238.319)	0.285 (0.204)	-479.378 (354.531)	
LP-wage		-79.427 (80.914)	-0.085 (0.067)	3.874 (82.295)	
Non-labor Income	-0.116 (0.742)	0.239 (0.740)	0.0003 (0.0006)	0.238 (0.733)	0.0002 (0.0003)
Age	13.954 (99.142)	40.151 (99.032)	-0.021 (0.083)	113.157 (97.463)	-0.017 (0.026)
Age squared	-0.175 (0.884)	-0.395 (0.883)	0.0001 (0.0007)	-0.913 (0.866)	0.0001 (0.0002)
Education	6.201 (5.030)	5.591 (5.199)	0.002 (0.004)	3.821 (5.887)	0.009** (0.002)
If immigrant	-358.963** (71.031)	-331.129** (70.241)	-0.257** (0.033)	87.739 (96.286)	-0.175** (0.021)
If married	13.384 (41.801)	4.696 (41.551)	0.028 (0.033)	-51.814 (45.332)	-0.003 (0.020)
Children less than 6	334.927 (289.274)	398.079 (284.332)	0.234 (0.259)	345.004 (285.098)	0.374+ (0.194)
Children 6-18	-64.554 (43.728)	-51.653 (43.443)	-0.023 (0.035)	-50.603 (46.366)	-0.012 (0.023)
Number of siblings	-12.088* (5.678)	-15.863** (5.708)	-0.017** (0.005)	4.192 (6.203)	-0.015** (0.003)

Table A2. Impact of Wages and Long-Term Care Policies on Informal Care Hours: Females (Cont.)

Annual Care Hours	Tobit (1)	Tobit (2)	Probit (3)	OLS (4)	Probit (5)
Number of parents	-6.350 (24.712)	3.330 (24.576)	-0.014 (0.020)	23.411 (27.151)	0.006 (0.012)
Ratio of mothers to total number of alive parents	38.348 (52.570)	36.281 (52.263)	0.071+ (0.042)	-61.488 (57.122)	0.058* (0.024)
Oldest parent's age	12.504** (3.333)	12.261** (3.312)	0.012** (0.003)	1.251 (3.646)	0.008** (0.002)
If at least one parent is in poor health	140.363** (35.941)	145.571** (35.795)	0.107** (0.030)	74.698+ (38.161)	0.095** (0.017)
Northern Europe	-21.634 (35.229)	42.314 (52.924)	0.086* (0.043)	-92.807 (57.938)	0.082** (0.028)
Southern Europe	-80.446 (56.309)	172.535 (106.106)	-0.028 (0.083)	425.623** (118.221)	-0.075+ (0.045)
Observations	1527	1527	1527	572	4165
Uncensored observations	572	572			
Chi-Square/R-squared	76.08	118.69	152.81	0.09	315.23
sigma:Constant	509.859** (16.344)	501.634** (16.025)			
Observed $P(y > 0)$			0.3746		0.3241
Pred. $P(y > 0 x)$			0.3587		0.3112

Table A3. Impact of Wages and Long-Term Care Policies on Labor Supply: Males

	OLS	OLS	Probit	OLS	OLS	Probit
Annual Work Hours	(1)	(2)	(3)	(4)	(5)	(6)
Hourly Wage	166.570** (29.509)	-468.914** (63.966)		446.982** (40.068)	-127.608 (104.306)	
UC		-1,272.594** (340.244)	-0.154* (0.071)		-2,763.579** (456.104)	-0.141** (0.038)
GT		-501.602* (207.527)	0.160** (0.036)		-552.525* (261.755)	0.049** (0.013)
DP		-792.799* (366.953)	-0.182** (0.045)		1,108.890* (469.770)	-0.065** (0.023)
LP		-164.568 (227.102)	0.171** (0.036)		-410.664 (269.751)	0.047** (0.016)
UC-wage		311.337* (126.111)			925.658** (177.067)	
GT-wage		271.018** (76.878)			314.113** (98.956)	
DP-wage		253.339+ (143.889)			-571.841** (195.779)	
LP-wage		103.931 (81.678)			202.999* (100.713)	
Non-labor Income	0.138 (0.747)	-0.037 (0.720)	0.0002 (0.0005)	0.740 (1.333)	0.678 (1.290)	0.00001 (0.0002)
Age	298.312** (85.057)	291.969** (81.706)	0.098* (0.044)	-33.475 (56.841)	-22.554 (54.932)	-0.078** (0.010)
Age squared	-2.788** (0.751)	-2.735** (0.721)	-0.001** (0.000)	0.163 (0.461)	0.042 (0.446)	0.0004** (0.0001)
Education	2.191 (4.267)	4.116 (4.247)	0.025** (0.003)	-13.101* (6.179)	-4.349 (6.335)	0.008** (0.001)
If immigrant	-57.518 (55.786)	-90.986+ (54.355)	-0.072* (0.033)	-187.851* (87.366)	-196.782* (84.069)	-0.027* (0.012)
If married	10.323 (44.587)	14.037 (42.961)	0.104** (0.028)	118.941* (53.271)	109.980* (51.612)	0.015+ (0.009)
Children less than 6	-113.031 (112.888)	-96.194 (108.458)	-0.142+ (0.081)	53.933 (222.190)	350.118 (221.853)	-0.012 (0.053)
Children 6-18	-25.808 (24.849)	-27.894 (23.860)	0.019 (0.020)	22.683 (42.212)	5.822 (40.606)	0.024+ (0.013)
Number of siblings	-9.580* (4.456)	-6.728 (4.320)	0.003 (0.003)			

Table A3. Impact of Wages and Long-Term Care Policies on Labor Supply: Males (Cont.)

	OLS	OLS	Probit	OLS	OLS	Probit
Annual Work Hours	(1)	(2)	(3)	(4)	(5)	(6)
Number of parents	18.808 (18.696)	23.093 (18.049)	0.020 (0.014)			
Ratio of mothers to total number of alive parents	59.840 (47.930)	87.825+ (46.161)	0.011 (0.031)			
Oldest parent's age	-3.440 (2.771)	-3.559 (2.677)	0.002 (0.002)			
If at least one parent is in poor health	15.712 (31.844)	0.723 (30.675)	-0.024 (0.021)			
Northern Europe	26.340 (34.871)	-107.995* (46.479)	0.114** (0.033)	-80.563 (54.095)	-194.260** (72.994)	0.086** (0.019)
Southern Europe	16.437 (40.851)	-535.050** (95.381)	-0.231** (0.058)	10.963 (65.625)	-671.247** (137.823)	-0.098** (0.015)
Observations	1739	1739	3966	864	864	6257
Chi-Square/R-squared	0.06	0.14	1657.52	0.19	0.26	2076.2
Observed $P(y > 0)$			0.5308			0.1736
Pred. $P(y > 0 x)$			0.4965			0.0918

Table A4. Impact of Wages and Long-Term Care Policies on Labor Supply: Females

	OLS (1)	OLS (2)	Probit (3)	OLS (4)	OLS (5)	Probit (6)
Annual Work Hours						
Hourly Wage	256.880** (29.535)	-100.204 (65.399)		307.861** (39.521)	57.917 (83.574)	
UC		-575.753 (377.574)	-0.141* (0.064)		-1,270.572** (396.630)	-0.118** (0.026)
GT		-321.478+ (191.360)	0.220** (0.031)		-359.445 (252.577)	0.045** (0.007)
DP		-103.678 (402.177)	-0.146** (0.045)		690.412+ (418.705)	-0.023+ (0.012)
LP		-634.357** (193.191)	0.128** (0.033)		26.851 (263.023)	0.033** (0.009)
UC-wage		217.835 (151.889)			480.686** (164.152)	
GT-wage		254.190** (76.139)			280.746** (104.276)	
DP-wage		-72.113 (169.573)			-354.554+ (189.027)	
LP-wage		289.302** (75.662)			19.839 (104.875)	
Non-labor Income	-0.673 (0.720)	-0.884 (0.707)	0.0004 (0.0004)	-1.420 (1.213)	-0.970 (1.200)	0.00001 (0.0001)
Age	30.062 (96.476)	2.067 (94.474)	0.173** (0.046)	-140.504* (71.557)	-116.979+ (70.929)	-0.029** (0.006)
Age squared	-0.432 (0.862)	-0.204 (0.844)	-0.002** (0.0004)	1.060+ (0.596)	0.854 (0.592)	0.0001** (0.00004)
Education	2.740 (4.547)	5.441 (4.587)	0.028** (0.002)	4.674 (6.179)	7.176 (6.230)	0.005** (0.001)
If immigrant	61.323 (52.510)	39.816 (51.391)	-0.050+ (0.029)	-11.730 (74.773)	-53.073 (73.977)	0.006 (0.008)
If married	-152.730** (38.550)	-144.189** (37.769)	-0.098** (0.023)	-106.664* (47.632)	-117.170* (47.701)	-0.018** (0.005)
Children less than 6	-274.521 (289.617)	-388.362 (282.598)	0.056 (0.239)	0.000 (0.000)	0.000 (0.000)	
Children 6-18	-2.536 (38.473)	-21.147 (37.730)	-0.052* (0.025)	-28.965 (78.309)	-28.517 (77.499)	-0.013 (0.009)
Number of siblings	-3.971 (5.169)	1.705 (5.110)	0.003 (0.003)			

Table A4. Impact of Wages and Long-Term Care Policies on Labor Supply: Females (Cont.)

	OLS (1)	OLS (2)	Probit (3)	OLS (4)	OLS (5)	Probit (6)
Annual Work Hours						
Number of parents	63.951** (22.735)	58.695** (22.183)	0.050** (0.014)			
Ratio of mothers to total number of alive parents	46.435 (48.522)	51.852 (47.365)	0.042 (0.028)			
Oldest parent's age	-4.010 (3.052)	-3.954 (2.990)	-0.001 (0.002)			
If at least one parent is in poor health	5.373 (34.157)	9.411 (33.428)	-0.066** (0.019)			
Northern Europe	263.777** (33.468)	122.419* (48.474)	0.168** (0.032)	299.668** (51.665)	113.698 (76.080)	0.049** (0.011)
Southern Europe	209.860** (50.107)	-36.024 (94.808)	-0.321** (0.039)	216.204** (66.195)	-58.835 (133.902)	-0.088** (0.009)
Observations	1527	1527	4165	892	892	8452
Chi-Square/R-squared	0.14	0.18	1324.83	0.15	0.19	2386.71
Observed $P(y > 0)$			0.4418			0.1305
Pred. $P(y > 0 x)$			0.3972			0.0435